

Managing Stress: Mindfulness-Based Strategies



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April 15, 2020

What is Stress?

- **Emotional**
- **Physiological**
- **Environmental**

- Stress is not what happens to you, but how you *react* to what happens
- “...demands exceed personal and social resources the individual is able to mobilize.”
RS Lazarus
- Change can induce a stress response.

See: Life Events Rating Scale at:
http://www.changeforlife.com/holmes_rahe.html

Acute vs. Chronic

Acute

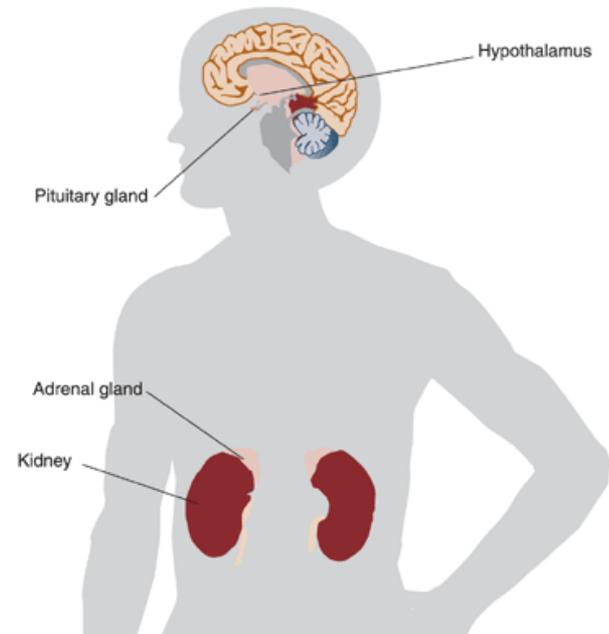
- “Fight or flight”
- Response to physical threat

Stress Hormones

- Adrenaline
- Cortisol

Chronic

- Psychological
- Interpersonal

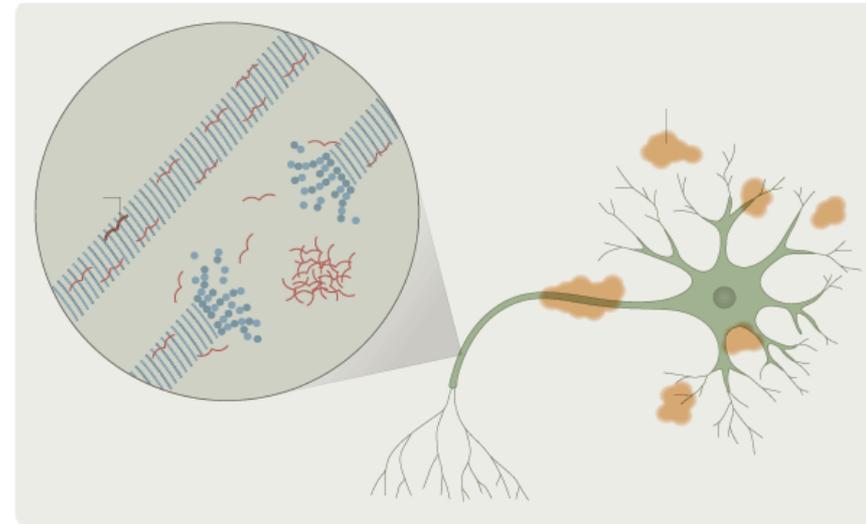
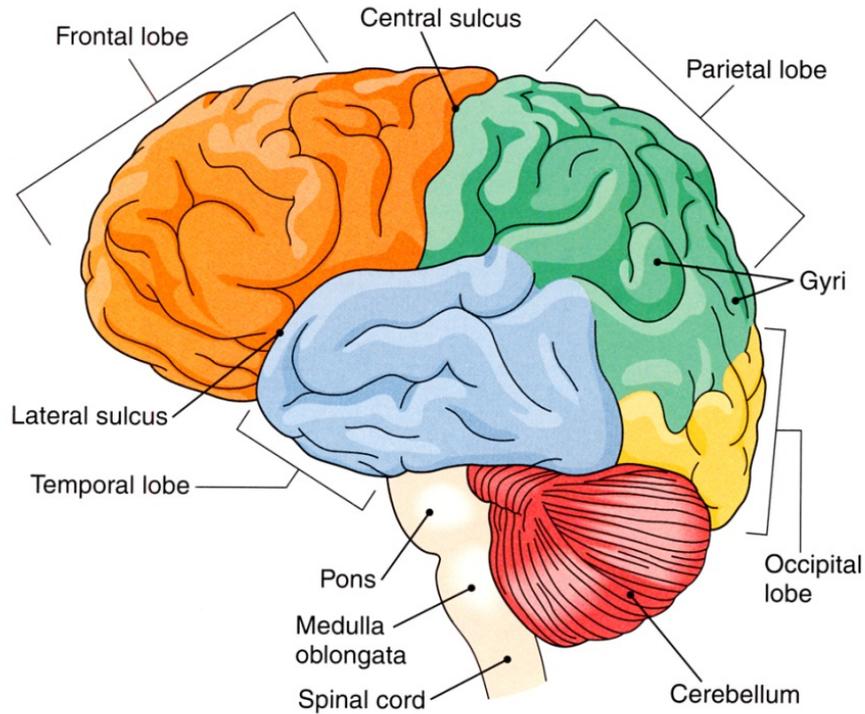




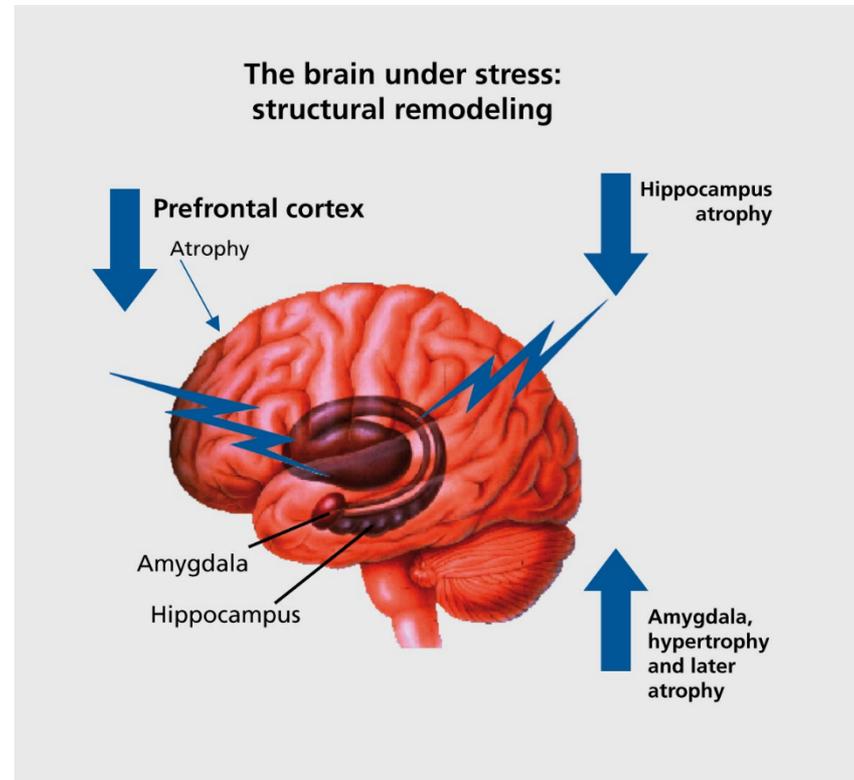
Effects – Chronic Stress

- Nervous System
 - Increased blood pressure, heart rate, platelet activity
- Endocrine - Increased cortisol &
 - Increased blood sugar
 - Increased insulin
 - Increased cholesterol
 - Impaired cognition
- Immune
 - Susceptibility to infection

Basic Neuroscience



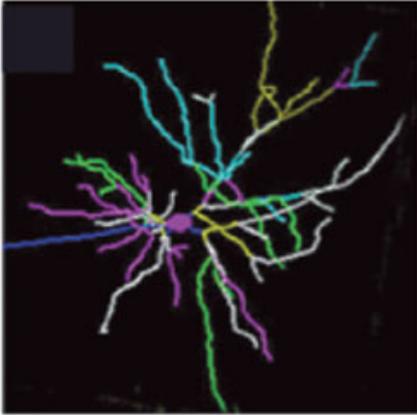
Stress and the Brain



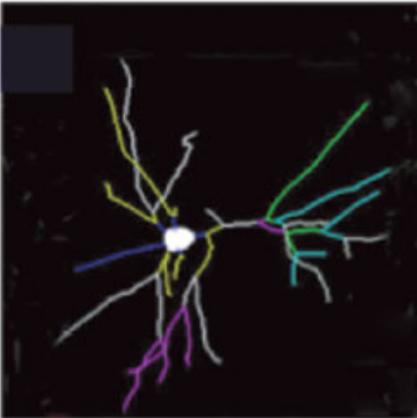
McEwen 2006

Stress and the Brain

Control

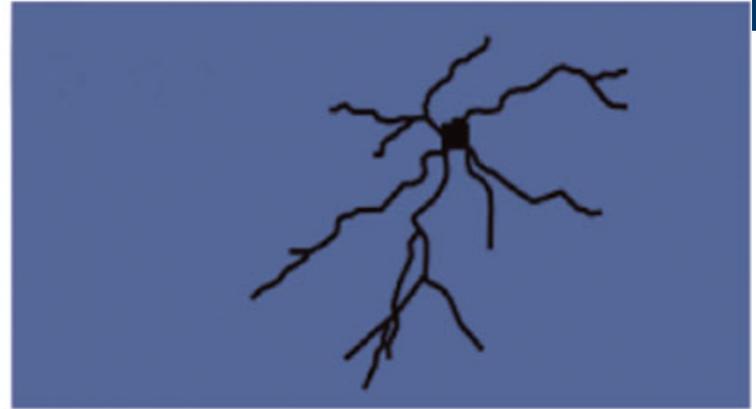


Chronic stress

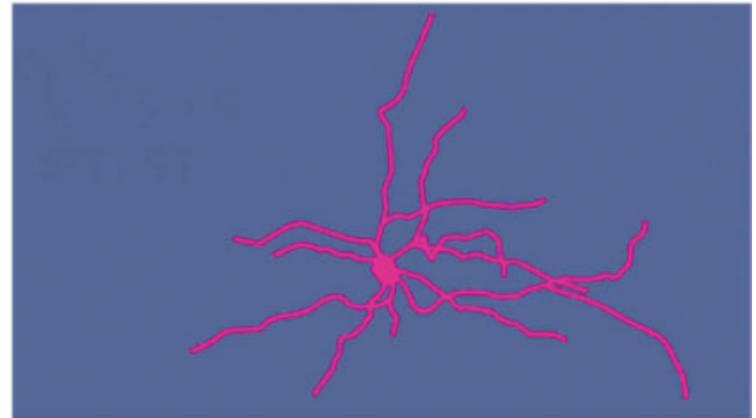


Prefrontal cortex
and hippocampus

Control



Chronic stress



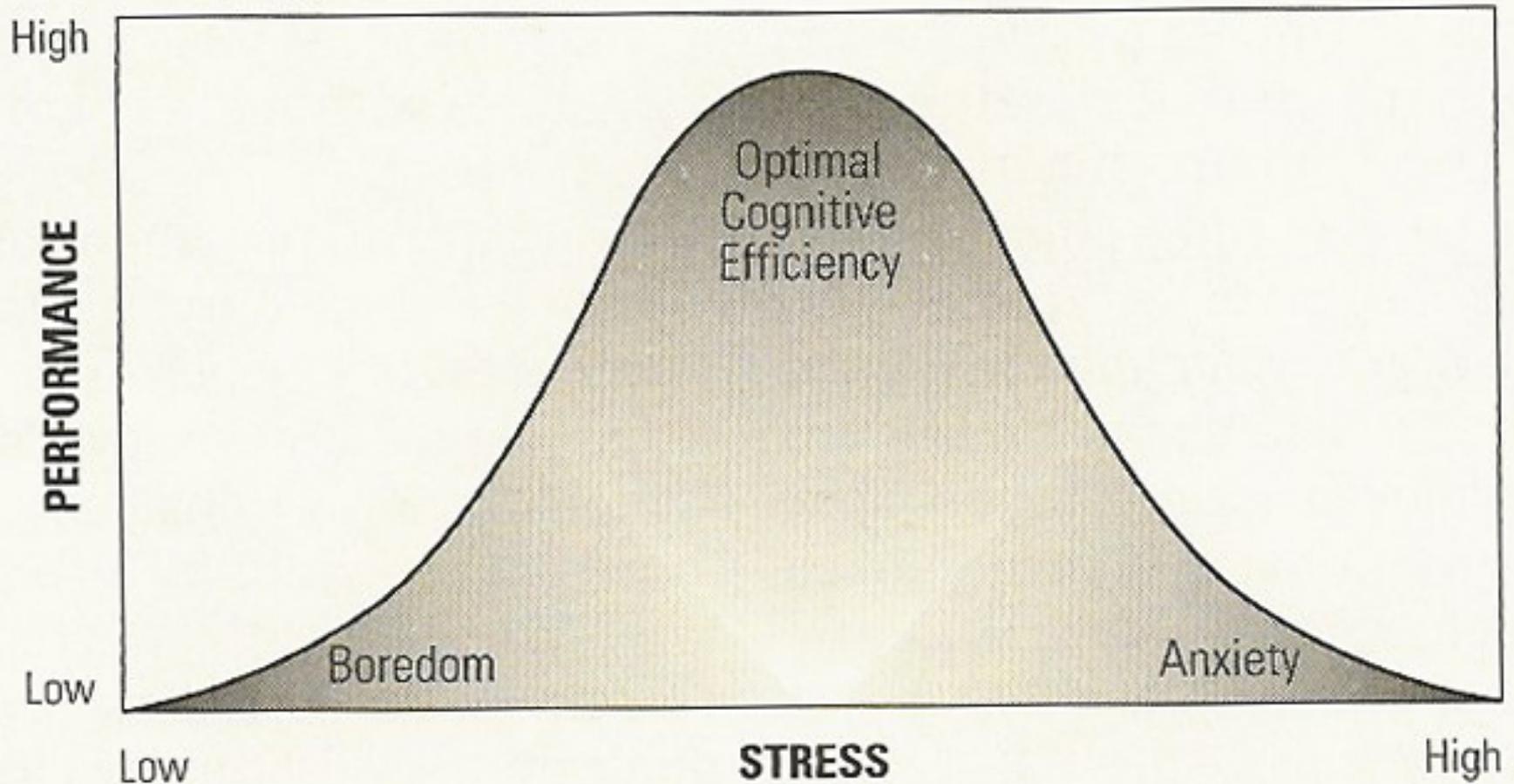
Amygdala and
orbitofrontal cortex

Some Acknowledgements



- Stress is
 - Unavoidable
 - Uncomfortable
 - Unhealthy
 - Unwanted
- Stress is not
 - Unmanageable
 - Unnecessary
 - Unacceptable
 - Unnatural
- There's also no one “right” or “best” way to deal with stress

Stress and Cognitive Efficiency



Stress Management Practices



Physical

Yoga, tai chi, running, weights

Spiritual

TM, Qigong, prayer

Meditation

- Concentrative – Mantra, prayers, visualization, qigong, yoga
- Receptive/awareness – Vipassana, mindfulness
- Reflective/analytical – disciplined thinking for insight
- Expressive – dancing, chanting, fast breathing, drumming, calligraphy

Other

- Nature, silence, gratitude, forgiveness



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“Could we up the dosage? I still have feelings.”

Mindfulness



- Relationship with Eastern meditation practices
 - Not tethered to them
 - Unconstrained to ideologies/beliefs
- Resting of attention in the present moment
- “Here and now” vs “then and there”
- Core components of openness to whatever the present moment contains
 - Non-judgmental
 - Gentleness
 - Curiosity
 - Acceptance
- Engagement over avoidance

Mindfulness



- Is not:
 - Escape
 - A different form of avoidance
 - Emptying the mind of all thoughts
 - Competitive
 - A relaxation technique
 - Exclusive
 - Dogmatic

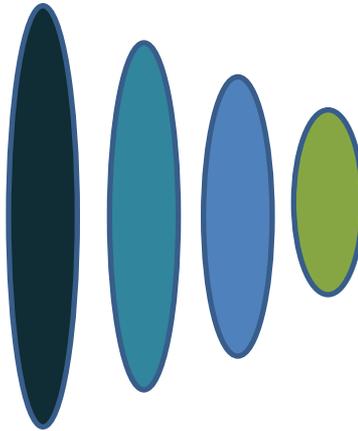
Mindfulness



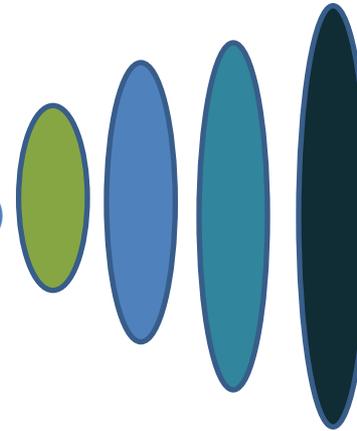
- “Mindfulness means paying attention in a particular way: on purpose, in the present moment, and non-judgmentally.” (Kabat-Zinn, 1994)
- “Life can be found only in the present moment. The past is gone, the future is not yet here, and if we do not go back to ourselves in the present moment, we cannot be in touch with life.” – Thich Nhat Hanh



WHAT WAS
(then and there)



WHAT IS
(here and now)



WHAT IF
(where and when)

Mindfulness



- Core attitudes (Kabat-Zinn, 1990):
 - Non-judging
 - Patience
 - Beginners Mind
 - Trusting
 - Non-striving
 - Acceptance
 - Freedom from attachment

Mindfulness



- Practice, not Mastery
 - Meditation
 - Body Scan
 - Breath
 - Sounds
 - Movement
 - Enhanced awareness
 - Body
 - Mind
 - World

Meditation and Cognition



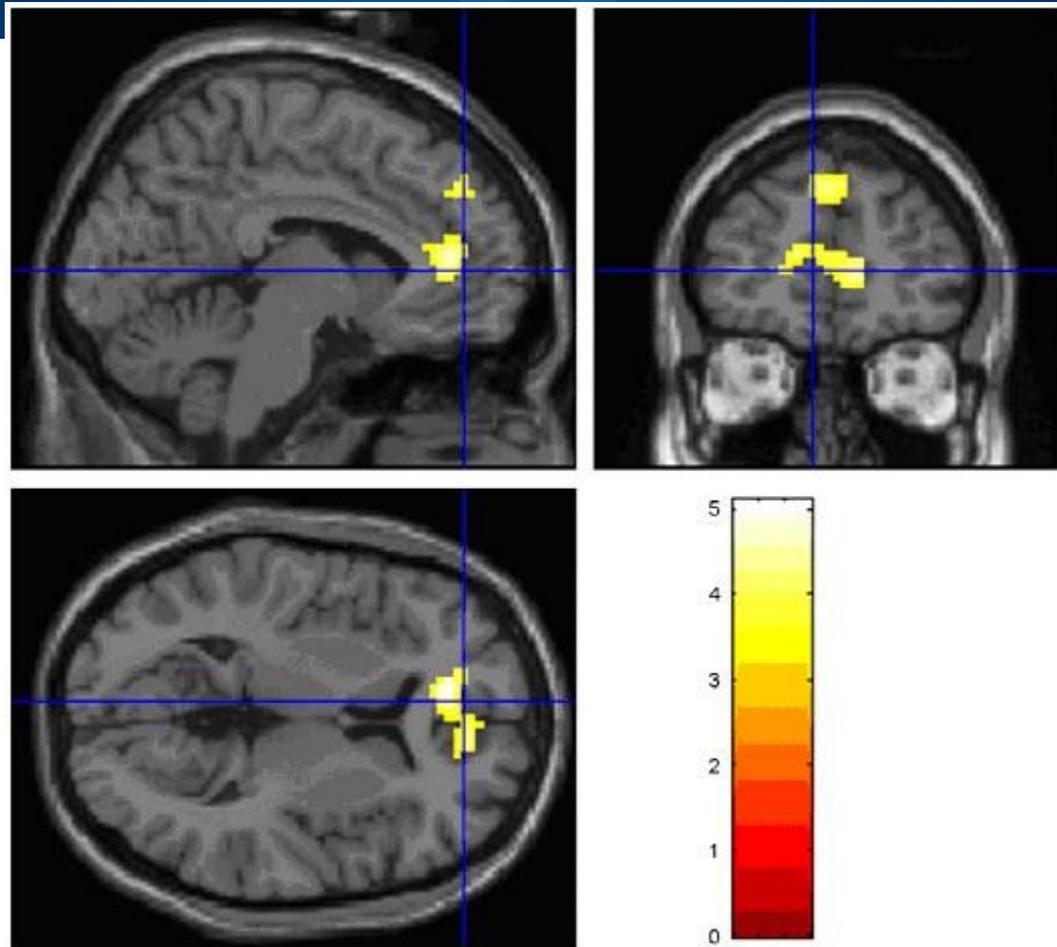
- Changes in cortical structures
 - White matter
 - Brain stem
 - Putamen
 - Frontal lobes
 - Function
 - Frontal
 - Parietal
 - Default mode network
- Changes in cognitive skills (Chiesa et al., 2011)
 - Processing speed
 - Attention
 - Selective vs. divided
 - Working memory
 - Executive function
 - Mental flexibility

Meditation and the Brain

Study	Intervention	<i>n</i>	Mean age \pm SD	Experience with meditation	Loci with increased cortical thickness	Interpretation
Lazar et al. (2005)	Various	20	38.2	9.1 \pm 7.1 years, 6.2 \pm 4 h per week	Anterior insula, parts of frontal lobe, auditory cortex in temporal lobe	Somato-sensory, auditory, and interceptive processes
Pagnoni and Cekic (2007)	Zen	13	37.2 \pm 6.9	>3 years per day	Putamen	Attention
Holzel et al. (2008)	Vipassana	20	34.1 \pm 4.7	8.6 years, 2 h daily	Anterior insula, right hippocampus, left inferior temporal gyrus	Anterior insula – awareness of internal experience
Vestergaard-Poulsen et al. (2009)	Tibetan buddhism	10	55 \pm 6.2	16.5 \pm 5.1 years	Medulla oblongata, anterior cerebellum, superior, and inferior frontal gyrus	Breath control, resistance to stress, attention, calmness
Luders et al. (2009)	Various	22	53 \pm 11.5	24 \pm 12 years	Orbito-frontal cortex, right thalamus, left inferior temporal gyrus	Regulation of emotions and sensory functions
Grant et al. (2010)	Zen	17	37.6 \pm 10.9	>1000 h	Anterior cingulate cortex, secondary somato-sensory cortex	Anterior cingulate cortex – adaptive control of behavior
Holzel et al. (2011)	MBSR	16	39 \pm 4	0	Left hippocampus, posterior cingulate cortex, temporo-parietal junction, cerebellum	Learning, memory, regulation of emotions, empathy
Luders et al. (2013b)	Various	50	51.4 \pm 12.8	20 years	Hippocampus, especially subiculum	Subiculum – regulation of stress
Grant et al. (2013)	Zen	18	37.1 \pm 10.9	>1000 h	Cingulo-fronto-parietal network	Attention

n, number of subjects, *SD*, standard deviation, *MBSR*, mindfulness-based stress reduction, *IBMT*, integrative body mind training.

Meditation and the Brain



Hölzel et al., 2007

Summary



- Validated, longstanding practice
- Non-denominational / trans-theoretical adjunct
- Likely multifactorial direct and indirect impact
 - Risk factors
 - Direct cortical effects
 - Direct functional effects
- Not a cure-all
- Requires effort
- Addresses multiple domains
 - Including quality of life

The Importance of Self-Compassion



- Self-kindness
 - Not self-pity
- Self-acceptance
 - Not self-esteem
- Self-compassion
 - Not self-indulgence or self-flagellation
- Importance of connection to a larger, common human condition
 - Versus isolation
- Importance of mindful awareness and engagement
 - Versus over-identification or fusing thoughts and reality

A Few Final Words on Acceptance



Acceptance is:

the nonjudgmental acknowledgement of “what is.”

Acceptance is not:

giving up, throwing in the towel, or quitting

Acceptance is also not:

the gnashing of teeth, beating of one’s head against the same wall over and over or swearing at the universe

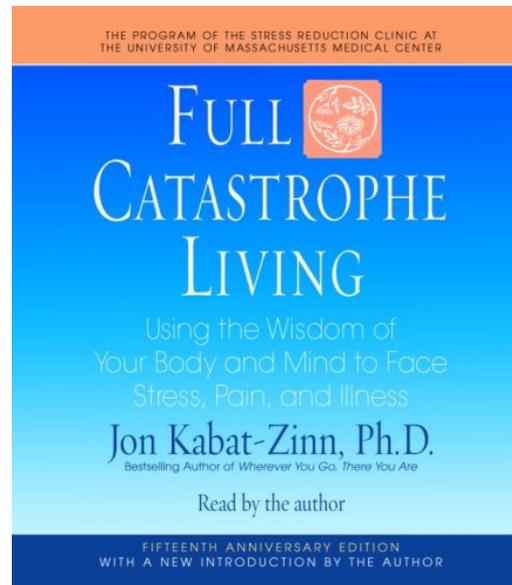
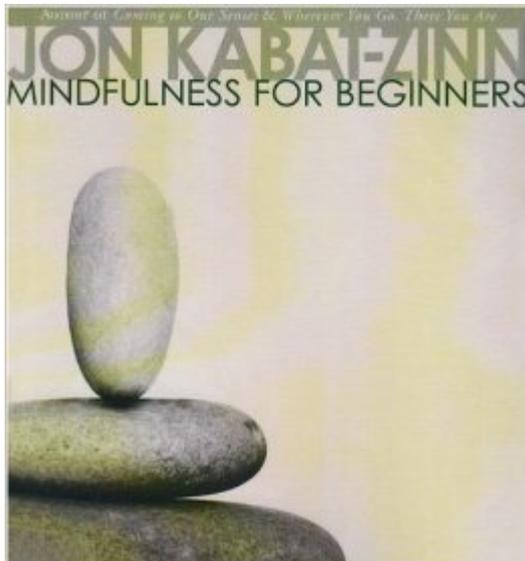
Perhaps the Final Word on Acceptance?



“I can’t fight this, so I might as well dance with it and lead as much as possible.”

Resources

- Mindfulness Northwest
- <http://www.mindfulnessnorthwest.com/>
- Seattle Mindfulness Center
- <http://seattlemindfulnesscenter.com/>
- Mindfulness for Beginners/Full Catastrophe Living (Kabat-Zinn)



Contact Information

Memory and Brain Wellness Center

<https://depts.washington.edu/mbwc/>

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